ORDER NO. TSD-7510-246

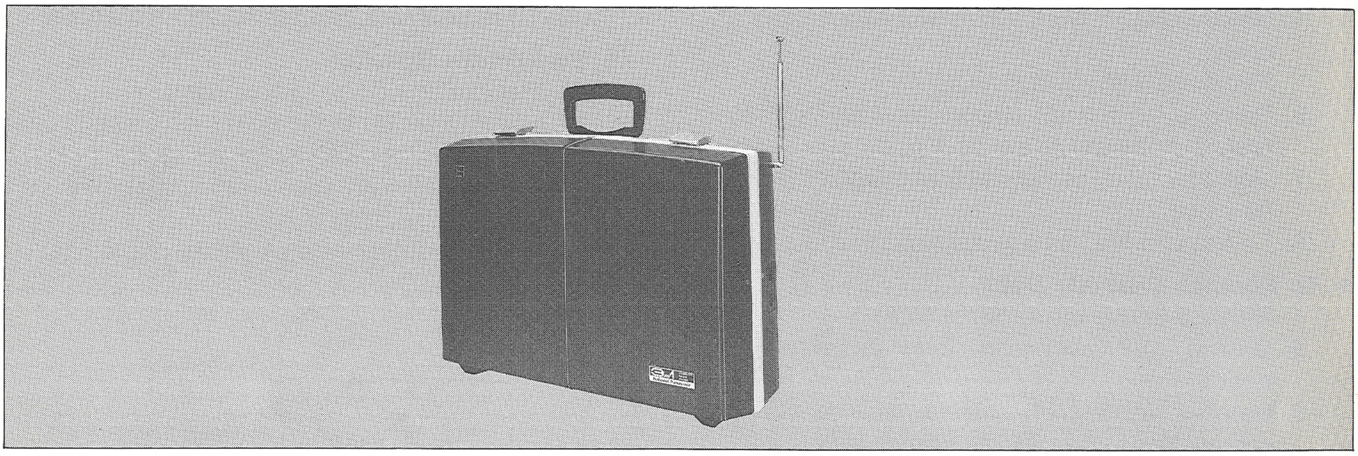
Service Manual

Portable Phono

SG-160A
SG-160F

MW/SW1/SW2 PORTABLE RADIO-PHONO WITH CASSETTE DECK

FM/AM PORTABLE RADIO-PHONO WITH CASSETTE DECK



Specifications

AMPLIFIER SECTION

Power Output	4W (CPO)

FM TUNER SECTION (For SG-160F only)

Frequency Range	87.5 ~ 108 MHz
Intermediate Frequency (IF)	10.7 MHz
Sensitivity	4μV/50 mW
Harmonic Distortion	0.4% (MOD 30%)
Image Ratio	40 dB

AM TUNER SECTION (For SG-160F only)

Frequency Range	525 ~ 1605 kHz (571 m ~ 187 m)
Intermediate Frequency (IF)	455 kHz
Sensitivity	100μV/m for 50 mW

AM TUNER SECTION (For SG-160A only)

Frequency Range	MW 525 ~ 1605 kHz (571 m ~ 187 m) SW1 2.3 ~ 7 MHz (130 m ~ 42.9 m) SW2 7 ~ 22 MHz (42.9 m ~ 13.6 m)
Intermediate Frequency (IF)	455 kHz
Sensitivity	MW 100μV/m for 50 mW SW1 50μV/m for 50 mw SW2 10μV/50 mW

RECORD PLAYER SECTION

Turntable Speeds	33-1/3 and 45 r.p.m.
Phonomotor	2-Speed DC Motor
Cartridge	EPC025TH, Ceramic
Stylus	SPJ4 (Sapphire)

TAPE DECK SECTION

Deck System	Auto Stop
Track System	4-Track, 2-Channel
Recording System	AC Bias, 53 kHz
Erasing System	AC Erase
Tape Speed	4.75 cm/sec
Frequency Response	60 ~ 8000 Hz

SPEAKER

Speaker	4″ PM Dynamic Speaker
Input Impedance	4 ohms

POWER CONSUMPTION	10W
POWER SUPPLY	100-115V, 115-130V, 200-225V, 225-250V, 50/60 Hz
BATTERIES	Six (6) "D" size flashlight batteries (9V)
DIMENSIONS (W × H × D)	455 mm × 345 mm × 145 mm (18-1/8″) × (13-1/16″) × (5-3/4″)
WEIGHT	6.6 kg (14 lb 10 oz) without batteries

National Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

DISASSEMBLY INSTRUCTIONS

■ To Replace Components (or To Remove Chassis)

1. Remove two top cover by unlocking left and right locks.
2. Remove five (5) player board mounting screws Nos. 1 ~ 5 and one (1) bottom cover mounting screw Nos. 6, as shown in Fig. 3.
3. Lift player board slightly and remove antenna clip from telescopic antenna.
4. Remove player board with chassis from bottom cover.
5. Remove six (6) knobs.
6. Remove red five (5) chassis mounting screws Nos. 7 ~ 11, as shown in Fig. 3.
7. Unsolder faulty components and replace it with new one.
8. To reassemble, reverse above procedure.

■ To Remove Cassette Deck

1. Refer to above instruction 1 to 5.
2. Unplug 16P connector form cassette PC board.
3. Remove red four (4) cassette deck mounting screws Nos. 12 ~ 15, as shown in Fig. 3.
4. To reassemble, reverse above procedure.

■ To Remove Phonomotor

1. Remove player board from bottom cover (Refer to above instruction).
2. Remove turntable by removing stopper pin, as shown in Fig. 1.
3. Remove speed selector knob.
4. Unsolder orange lead and peaking coil from phonomotor.
5. Remove three (3) phonomotor mounting screw.
6. To reassemble, reverse above procedure.

■ To Remove Speaker

1. Remove top cover (left or right).
2. Remove six (6) baffle board mounting screws, Nos. 16 ~ 21, as shown in Fig. 3.
3. Remove four (4) speaker mounting nuts.
4. Unsolder speaker cord.
5. To reassemble, reverse above procedure.

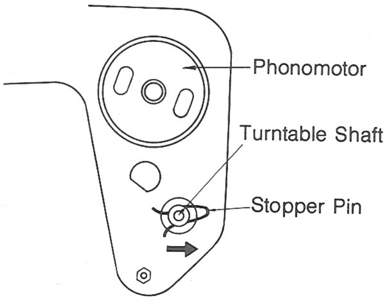


FIG. 1 BOTTOM VIEW OF PLAYER BOARD

■ To Replace Stylus

1. Lift the pickup arm to a position that will make the stylus accessible.
2. Loosen the holding screw and gently remove the worn stylus with a suitable screwdriver, as shown in Fig. 2.
   Do not use an oversize screwdriver.
3. Put new stylus into correct position, making sure the stylus fits properly into the armature.
4. Tighten the holding screw no more than necessary to keep it from shaking loose.

■ To Replace Cartridge

1. Lift the pickup arm to a position that will make the cartridge accessible.
2. Remove cartridge holding screw, as shown in Fig. 3.
3. Disconnect four (4) connectors from cartridge terminals gently.
4. Fit the new one. (When installing wires, make sure they fit to the correct positions in the connector.)
5. To reassemble, reverse above procedure.

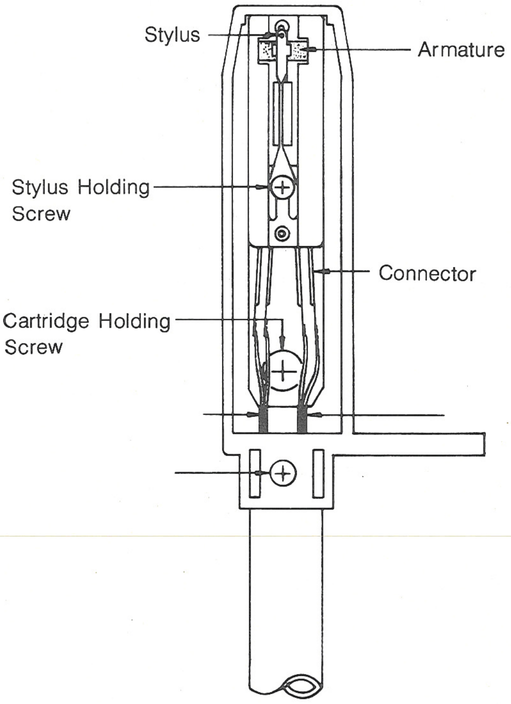


FIG. 2

LOCATION OF PARTS

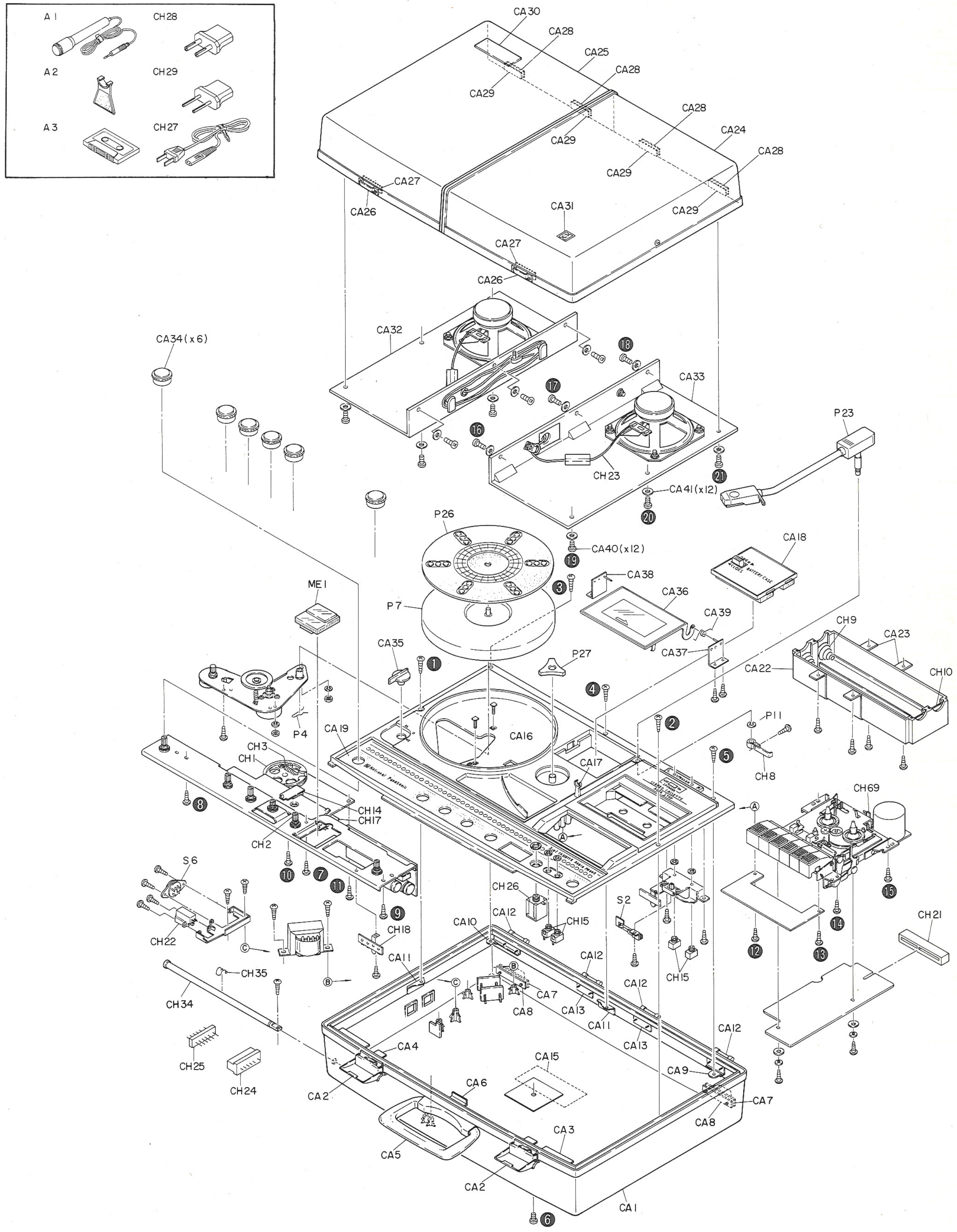

A1
A2
A3
CH28
CH29
CH27
CA30
CA28
CA25
CA28
CA29
CA28
CA24
CA28
CA29
CA29
CA27
CA26
CA31
CA29
CA27
CA26
CA34(x6)
CA32
CA33
P23
CH23
CA41(x12)
P26
CA40(x12)
CA18
CA38
CA36
CA39
ME1
P7
CA37
CA35
P27
CH9
CA23
CH10
CA22
P11
CA16
CA17
CH8
P4
CA19
CH3
CH1
CH14
CH17
CH69
CH2
S6
CH26
S2
CH18
CA10
CA12
CH15
CH21
CH22
CH35
CA11
CA12
CA12
CH15
CH34
CA7
CA8
CA13
CA11
CA13
CA12
CH25
CH24
CA4
CA15
CA6
CA9
CA7
CA2
CA8
CA3
CA5
CA2
CA1
①
②
④
⑤
⑥
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FIG. 3

ALIGNMENT INSTRUCTIONS (RADIO) (SG-160A)

Control Setting and Procedure:

1. Volume Control .... Maximum
2. Tone Control .... Maximum
3. Balance Control............ Center
4. Function Selector .... MW, SW1, SW2
5. Power Switch .... ON
6. Output of signal generator should be no higher than necessary to obtain output reading.
7. Make certain that speaker system is connected to the tuner when aligning.

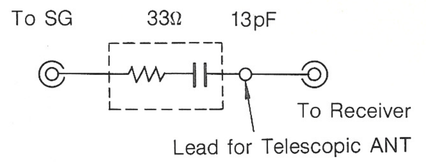

To SG
33Ω
13pF
To Receiver
Lead for Telescopic ANT

FIG. 4 SW2 DUMMY ANTENNA

STEP	BAND	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1	MW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz (400∿Mod.)	Point of non-interference. on/about (600 kHz)	Output meter across speaker jack (L) (load 4Ω)	T201 (1st I.F.T.) T202 (2nd I.F.T.) T203 (3rd I.F.T.)	Adjust for maximum output
2	MW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	550 kHz (400∿Mod.)	550 kHz (8.6 mm)	Output meter across speaker jack (L) (load 4Ω)	L202 (OSC Coil) L1 (ANT Coil)	Adjust for maximum output by sliding coil (L1) along ferrite core.
3	MW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1500 kHz (400∿Mod.)	1500 kHz (82.6 mm)	Output meter across speaker jack (L) (load 4Ω)	CT204 (OSC Trimmer) CT201 (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
4	SW1	Fashion loop of several turns of wire and radiate signal into loop or receiver.	2.3 MHz (400∿Mod.)	2.3 MHz (2.9 mm)	Output meter across speaker jack (L) (load 4Ω)	L203 (OSC Coil) L2 (ANT Coil)	Adjust for maximum output by sliding coil (L2) along ferrite core.
5	SW1	Fashion loop of several turns of wire and radiate signal into loop of receiver	7 MHz (400∿Mod.)	7 MHz (88.3 mm)	Output meter across speaker jack (L) (load 4Ω)	CT205 (OSC Trimmer) CT202 (ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
6	SW2	Connect to antenna clip and ground through SW Dummy antenna.	7 MHz (400∿Mod.)	7 MHz (2.9 mm)	Output meter across speaker jack (L) (load 4Ω)	L204 (OSC Coil) L201 (ANT Coil)	Adjust for maximum output.
7	SW2	Connect to antenna clip and ground through SW Dummy antenna.	22 MHz (400∿Mod.)	22 MHz (88.3 mm)	Output meter across speaker jack (L) (load 4Ω)	CT206 (OSC Trimmer) CT203 (ANT Trimmer)	Adjust for maximum output. Repeat steps (6) and (7).

*** Cement antenna bobbin with wax after completing alignment.**

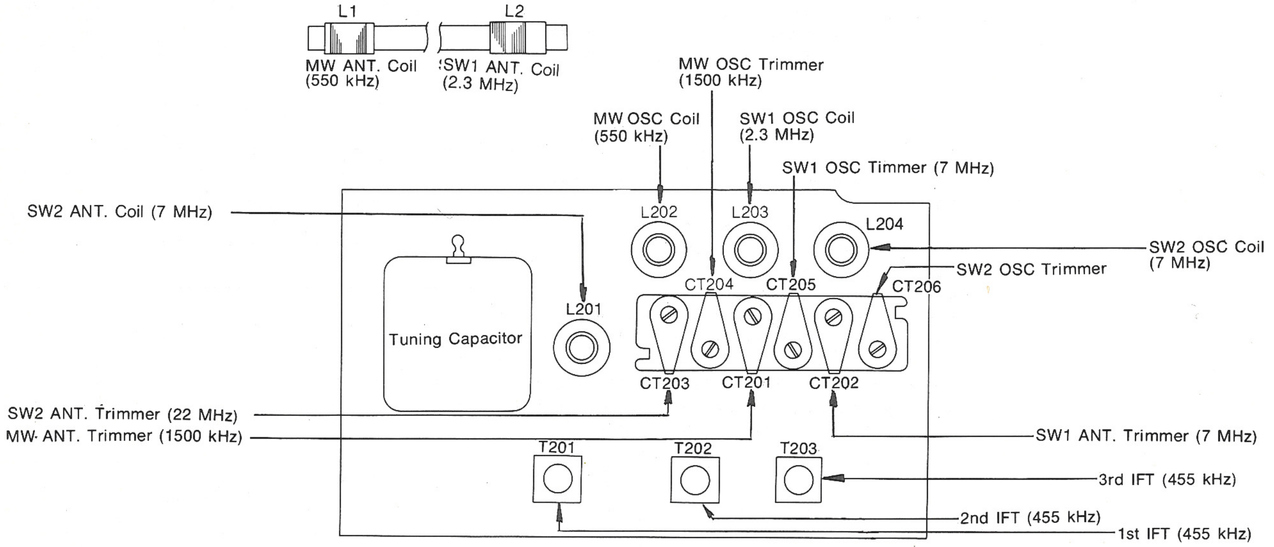
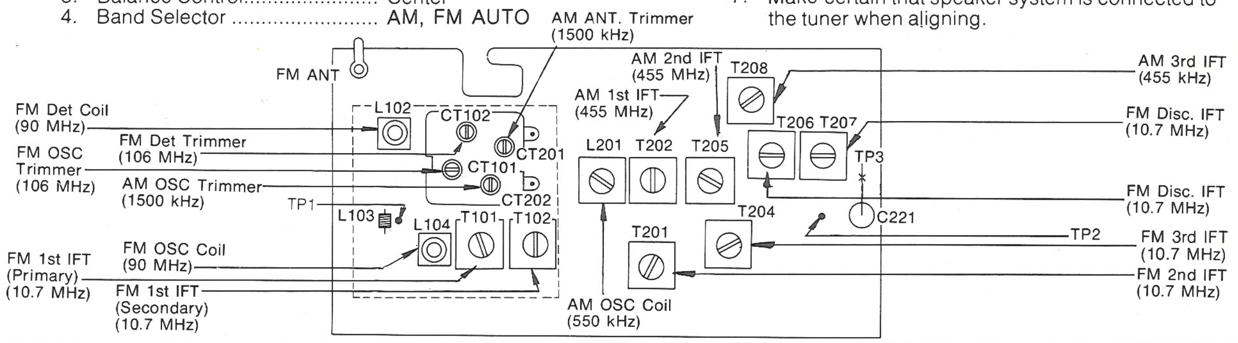

L1
L2
MW ANT. Coil (550 kHz)
SW1 ANT. Coil (2.3 MHz)
MW OSC Trimmer (1500 kHz)
MW OSC Coil (550 kHz)
SW1 OSC Coil (2.3 MHz)
SW1 OSC Timmer (7 MHz)
SW2 ANT. Coil (7 MHz)
L202
L203
L204
SW2 OSC Coil (7 MHz)
SW2 OSC Trimmer
CT204
CT205
CT206
Tuning Capacitor
L201
CT203
CT201
CT202
SW2 ANT. Trimmer (22 MHz)
MW ANT. Trimmer (1500 kHz)
SW1 ANT. Trimmer (7 MHz)
T201
T202
T203
3rd IFT (455 kHz)
2nd IFT (455 kHz)
1st IFT (455 kHz)

FIG. 5 ALIGNMENT POINTS

ALIGNMENT INSTRUCTIONS (RADIO) (SG-160F)

Control Setting and Procedure:

1. Volume Control .... Maximum (AM-IF and RF, FM-RF), Minimum (FM-IF)
2. Tone Control.......................... Maximum
3. Balance Control....................... Center
4. Band Selector .... AM, FM AUTO
5. Power Switch .... ON
6. Output of signal generator should be no higher than necessary to obtain output reading.
7. Make certain that speaker system is connected to the tuner when aligning.


AM ANT. Trimmer
(1500 kHz)
FM ANT
AM 2nd IFT
(455 MHz)
T208
AM 3rd IFT
(455 kHz)
AM 1st IFT
(455 MHz)
FM Det Coil
(90 MHz)
L102
CT102
FM Det Trimmer
(106 MHz)
CT201
FM OSC
Trimmer
(106 MHz)
CT101
L201
T202
T205
T206 T207
FM Disc. IFT
(10.7 MHz)
TP3
AM OSC Trimmer
(1500 kHz)
CT202
FM Disc. IFT
(10.7 MHz)
TP1
L103
L104
T101
T102
T204
C221
T201
TP2
FM 3rd IFT
(10.7 MHz)
FM 1st IFT
(Primary)
(10.7 MHz)
FM OSC Coil
(90 MHz)
FM 1st IFT
(Secondary)
(10.7 MHz)
FM 2nd IFT
(10.7 MHz)
AM OSC Coil
(550 kHz)

STEP	SIGNAL GENERATOR OR SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUST	REMARKS
	CONNECTION	FREQUENCY				
AM-IF AND RF ALIGNMENT						
1	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. with 400 Hz	Point of non-interference (on/ about 600 kHz)	Output meter across speaker jack (L) (Imp. 4Ω)	T202 (1st IFT) T205 (2nd IFT) T208 (3rd IFT)	Adjust for maximum output.
2	Fashion loop of several turns of wire and radiate signal into loop of receiver.	550 kHz 30% Mod. with 400 Hz	550 kHz (7.5 mm)	Output meter across speaker jack (L) (Imp. 4Ω)	L201 (OSC Coil) L1 (ANT Coil)	Adjust for maximum output by sliding coil (L1) along ferrite core.
3	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1500 kHz 30% Mod. with 400 Hz	1500 kHz (83.9 mm)	Output meter across speaker jack (L) (Imp. 4Ω)	CT202 (OSC Trimmer) CT201 (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
*** Cement antenna bobbin with wax after completing alignment.**						
FM-IF AND DETECTOR ALIGNMENT						
1	High side through 0.001 mfd to point TP1. Common to chassis.	10.7 MHz (400 kHz SWP.)	Point of non-interference (on/ about 98 MHz)	Connect vert. amp. of scope to point TP3. Common to chassis.	T101 (FM 1st IFT) T102 (FM 1st IFT) T201 (FM 2nd IFT) T204 (FM 3rd IFT) T206 (FM Disc. IFT)	Adjust for maximum amplitude and symmetrical curve (Refer to Fig. 6)
2	High side through 0.001 mfd to point TP1. Common to chassis.	10.7 MHz (400 kHz SWP.)	Point of non-interference (on/ about 98 MHz)	Connect vert. amp. of scope to point TP2. Common to chassis.	T207 (FM Disc. IFT)	Adjust for maximum amplitude and proper linearity between ±100 kHz markers. (Refer to Fig. 7)
*** Before aligning step 1, turn the core of T207 fully counterclockwise.** *** Before aligning step 1, unsolder lead of test point 3 (TP3) and resolder it after alignment.**						
FM-RF ALIGNMENT						
1	Connect to antenna clip through Dummy antenna. Common to chassis. (Refer to Fig. 8)	90 MHz 30% Mod. with 400 Hz	90 MHz (15.8 mm)	Output meter across speaker jack (L). (Imp. 4Ω)	L104 (FM OSC Coil) L102 (FM DET Coil)	Adjust for maximum output.
2	Connect to antenna clip through Dummy antenna. Common to chassis. (Refer to Fig. 8)	106 MHz 30% Mod. with 400 Hz	106 MHz (79.9 mm)	Output meter across speaker jack (L) (Imp. 4Ω)	CT101 (FM OSC Trimmer) CT102 (FM DET Trimmer)	Adjust for maximum output. Repeat steps (1) and (2).
*** As three output readings will be present, adjustments must be made at center frequency.**						

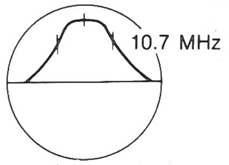


FIG. 6

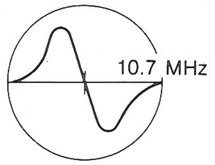


FIG. 7

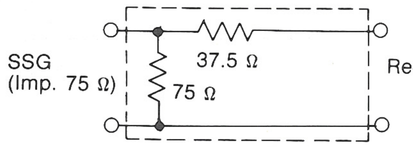

SSG
(Imp. 75 Ω)
37.5 Ω
75 Ω
Receiver

FIG. 8 DUMMY ANTENNA

ALIGNMENT INSTRUCTIONS (CASSETTE DECK)

Notes:
1. Function Selector.....................TAPE
2. Power Source...........................ON
3. Push Buttons............................PLAY and REC (Depress at the same time.)

STEP	CIRCUITS	VTVM CONNECTION	VOLUME CONTROL	ADJUSTMENT	REMARKS
1	AC BIAS OSCILLATOR & ERASE	Connect positive side to TP2 and negative side to TP1.	MIN	VR801 (OSC Level Adjust)	Adjust VR801 for 6 ± 0.2 V reading on VTVM-1.
2	AC BIAS OSCILLATOR & ERASE	Connect positive side to TP4 and negative side to TP3.	MIN	L802 (AC Bias Trap Coil)	Adjust L802 for 3.2 ± 0.2 mV reading on VTVM-2.
3	AC BIAS OSCILLATOR & ERASE	Connect positive side to TP5 and negative side to TP3.	MIN	L803 (AC Bias Trap Coil)	Adjust L803 for 3.2 ± 0.2 mV reading on VTVM-2. Repeat steps (1), (2) and (3) and check each indication of VTVMs.

Notes:
1. T801 is pre-aligned. Do not touch it.
2. Do not touch R/P Head or Erase Head when adjusting.

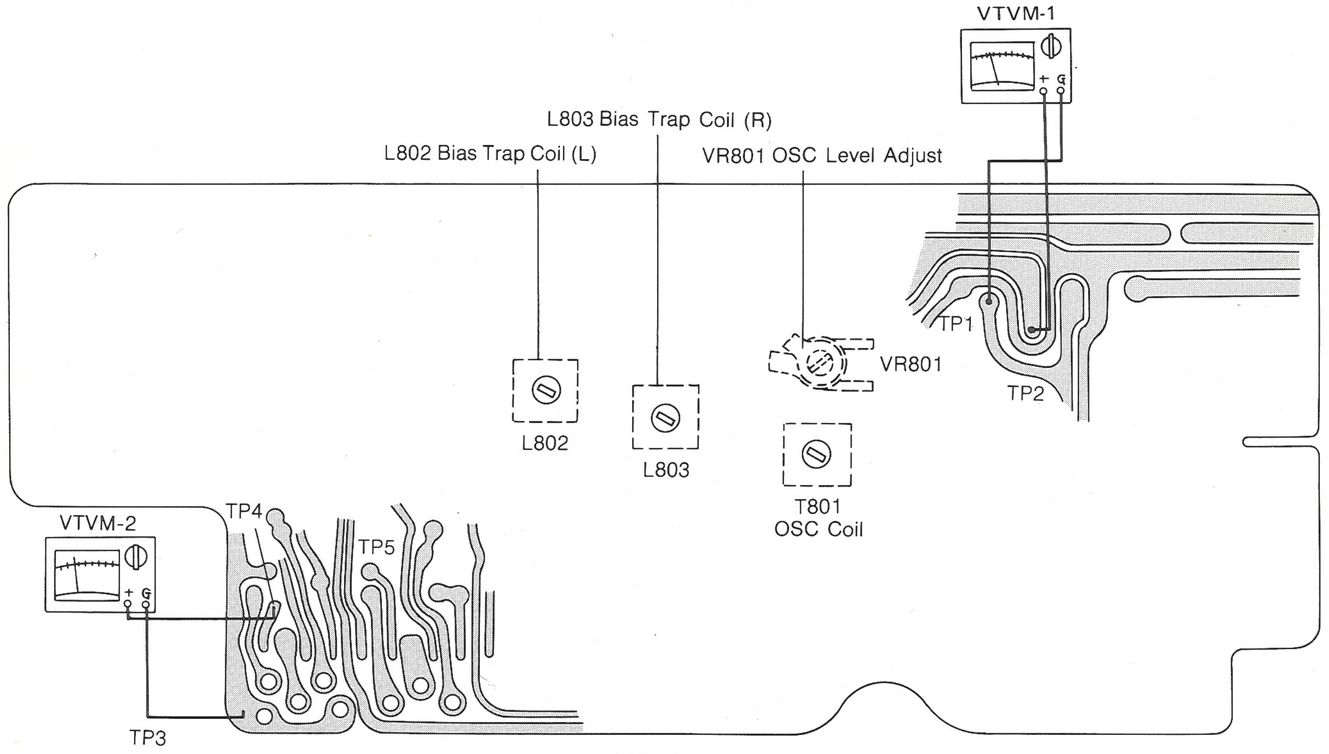

VTVM-1
L803 Bias Trap Coil (R)
L802 Bias Trap Coil (L)
VR801 OSC Level Adjust
TP1
VR801
TP2
L802
L803
T801
OSC Coil
VTVM-2
TP4
TP5
TP3

FIG. 9

RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

Play back a Standard Alignment Tape and turn azimuth adjusting screw for maximum loudness.

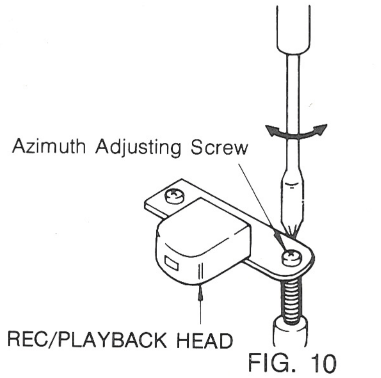
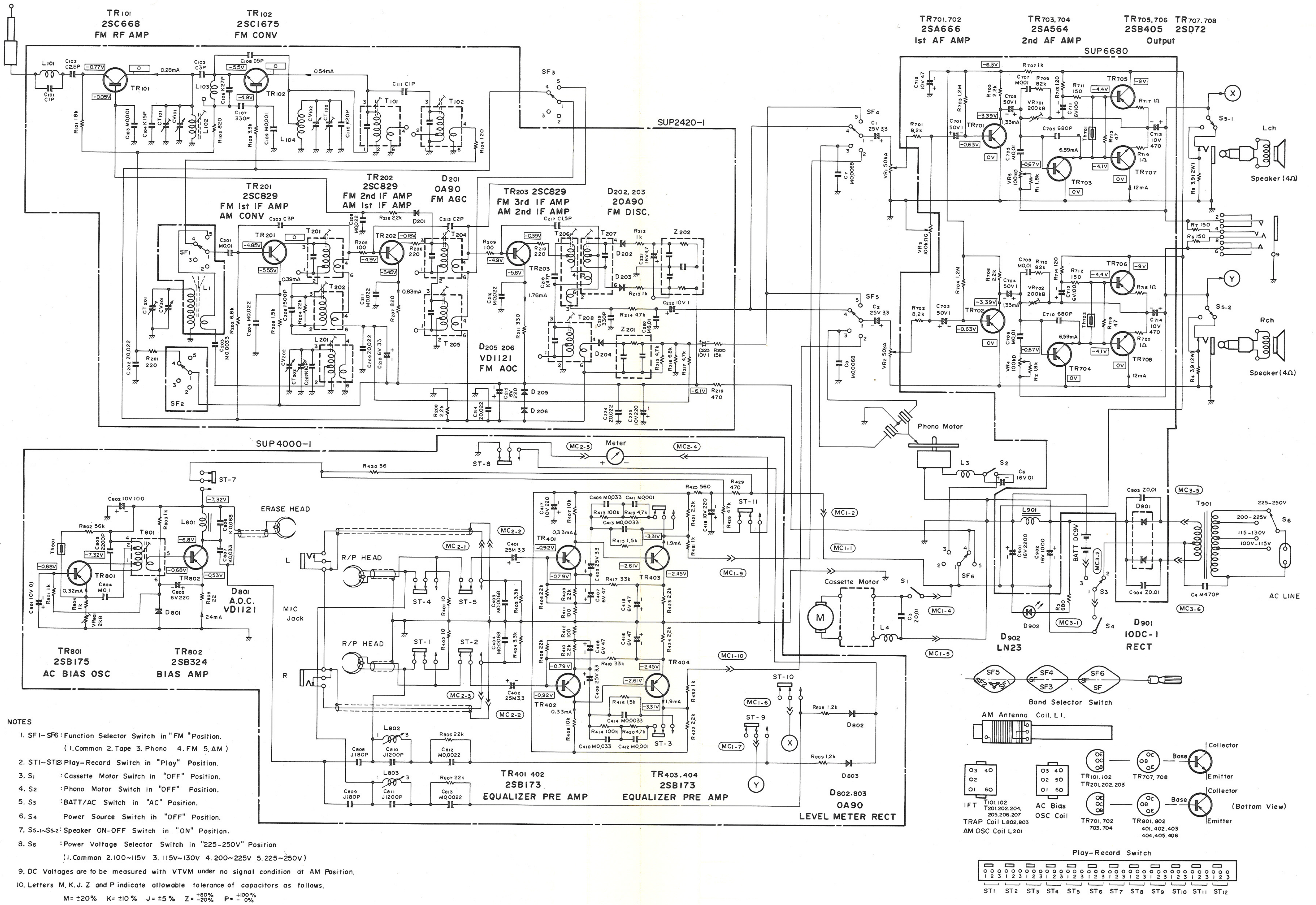

Azimuth Adjusting Screw
REC/PLAYBACK HEAD

FIG. 10

SCHEMATIC DIAGRAM OF MODEL SG-160F


TR101
2SC668
FM RF AMP
TR102
2SC1675
FM CONV
L101
C101 C1P
C102 C2.5P
R101 18k
C103 M0.001
C104 K15P
CT101
CV101
L102
L103
C105 C3P
C106 K27P
C107 330P
C108 D5P
R102 820
R103 3.3k
C109 M0.001
L104
CV102
CT102
C110 K20P
C111 C1P
T101
T102
R104 120
0.28mA
0.54mA
-0.77V
-0.05V
-5.5V
-4.9V
SF3
SUP2420-1
TR201
2SC829
FM 1st IF AMP
AM CONV
TR202
2SC829
FM 2nd IF AMP
AM 1st IF AMP
D201
0A90
FM AGC
TR203 2SC829
FM 3rd IF AMP
AM 2nd IF AMP
D202, 203
2OA90
FM DISC.
SF1
SF2
L1
CT201
CV201
C201 M0.01
C202 Z0.022
R201 220
R202 6.8k
C203 M0.0033
C204 M0.022
R203 1.5k
C205 C3P
C206 1500P
R204 22k
T201
T202
L201
CV202
CT202
C207 K10P
C208 M0.022
C209 Z0.022
C210 6V 33
R205 100
R206 220
R207 820
R208 2.2k
R218 2.2k
C211 M0.022
C212 C2P
T204
T205
R209 100
R210 220
R211 330
C216 M0.022
C217 C1.5P
C218 K47P
T206
T207
T208
R212 1k
R213 1k
R214 4.7k
C219 330P
C220 M0.01
C221 16V4.7
C222 10V 1
C223 10V 1
R220 15k
Z201
Z202
R215 4.7k
R216 6.8k
R217 4.7k
R219 470
C214 Z0.022
C215 6V 220
C224 Z0.022
C225 10V220
D204
D205 206
VD1121
FM AOC
D205
D206
-4.85V
-5.55V
0.39mA
-0.18V
-4.9V
-5.45V
0.83mA
-0.39V
-5.6V
1.76mA
-6.1V
TR701, 702
2SA666
1st AF AMP
TR703, 704
2SA564
2nd AF AMP
TR705, 706 TR707, 708
2SB405 2SD72
Output
SUP6680
SF4
SF5
C1 25V 3.3
C2 25V 3.3
C7 M0.0068
C8 M0.0068
VR1 50kA
VR2 50kA
VR3 100kΩG
R701 8.2k
R702 8.2k
C701 50V1
C702 50V1
R703 1.2M
R704 1.2M
R705 2.2k
R706 2.2k
C703 50V1
C704 50V1
R707 1k
C707 M0.01
C708 M0.01
R709 82k
R710 82k
VR701 200kB
VR702 200kB
R713 120
R714 120
C711 6V100
C712 6V100
R711 150
R712 150
C709 680P
C710 680P
Th701
Th702
R715 47
R716 47
R717 1Ω
R718 1Ω
R719 1Ω
R720 1Ω
C713 10V 470
C714 10V 470
C715 10V 47
C705 M0.01
C706 M0.01
VR5 100kD
VR4 100kD
R1 1.8k
R2 1.8k
R3 3.9(2W)
R4 3.9(2W)
R7 150
R6 150
-6.3V
-3.39V
-0.63V
1.33mA
-0.67V
6.59mA
-4.4V
-4.1V
-9V
0V
12mA
S5-1
S5-2
Lch
Rch
Speaker (4Ω)
Phono Motor
L3
S2
C6 16V 0.1
SUP4000-1
R430 56
ST-7
ST-8
Meter
MC2-5
MC2-4
C801 10V 0.1
C802 10V 100
R802 56k
R803 1k
Th801
C803 2200P
T801
L801
C806 K0.068
C807 K0.033
R801 1k
R804 1k
VR801 2kB
C804 M0.1
C805 6V220
R805 22
D801
-0.68V
-7.32V
-6.8V
-0.53V
0.32mA
24mA
TR801
2SB175
AC BIAS OSC
TR802
2SB324
BIAS AMP
D801
A.O.C.
VD1121
ERASE HEAD
L
R
MIC
Jack
R/P HEAD
ST-1
ST-2
ST-3
ST-4
ST-5
R401 10
R402 10
C403 M0.0068
C404 M0.0068
R403 3.3k
R404 3.3k
MC2-1
MC2-2
MC2-3
C401 25M 3.3
C402 25M 3.3
L802
L803
C808 J180P
C809 J180P
C810 J1200P
C811 J1200P
R806 22k
R807 22k
C812 M0.0022
C813 M0.0022
TR401
TR402
TR403
TR404
C417 10V 220
R407 10k
R408 10k
C409 M0.033
C411 M0.001
R413 100k
R419 4.7k
C413 M0.0033
R415 1.5k
R405 22k
R406 22k
R409 2.2k
R410 2.2k
R411 100
R412 100
C405 25V 3.3
C406 25V 3.3
C407 6V 47
C408 6V 47
R417 33k
R418 33k
C415 6V 47
C416 6V 47
R423 2.2k
R424 2.2k
R416 1.5k
C414 M0.0033
R414 100k
R420 4.7k
C410 M0.033
C412 M0.001
R425 560
R429 470
R421 2.2k
R422 2.2k
C418 10V 220
R426 47k
R431 1k
R432 1k
ST-9
ST-10
ST-11
0.33mA
1.9mA
-0.92V
-0.79V
-2.61V
-3.31V
-2.45V
TR401 402
2SB173
EQUALIZER PRE AMP
TR403.404
2SB173
EQUALIZER PRE AMP
MC1-1
MC1-2
MC1-4
MC1-5
MC1-6
MC1-7
MC1-9
MC1-10
X
Y
R808 1.2k
R809 1.2k
D802
D803
D802.803
0A90
LEVEL METER RECT
Cassette Motor
M
S1
C3 Z0.01
L4
SF6
L901
C901 16V2200
C902 16V1000
BATT DC9V
MC3-1
MC3-2
MC3-5
MC3-6
S3
S4
R5 680
D902
D902
LN23
C903 Z0.01
C904 Z0.01
D901
D901
10DC-1
RECT
T901
225-250V
200-225V
115-130V
100V-115V
S6
C4 M470P
AC LINE
SF5
SF4
SF3
SF6
SF
SF1
SF2
Band Selector Switch
AM Antenna Coil. L1.
IFT
T101.102
T201.202.204.
205.206.207
TRAP Coil L802.803
AM OSC Coil L201
AC Bias
OSC Coil
TR101.102
TR201.202.203
TR707.708
TR701.702
703.704
TR801.802
401.402.403
404.405.406
Collector
Base
Emitter
(Bottom View)
Play-Record Switch
ST1
ST2
ST3
ST4
ST5
ST6
ST7
ST8
ST9
ST10
ST11
ST12

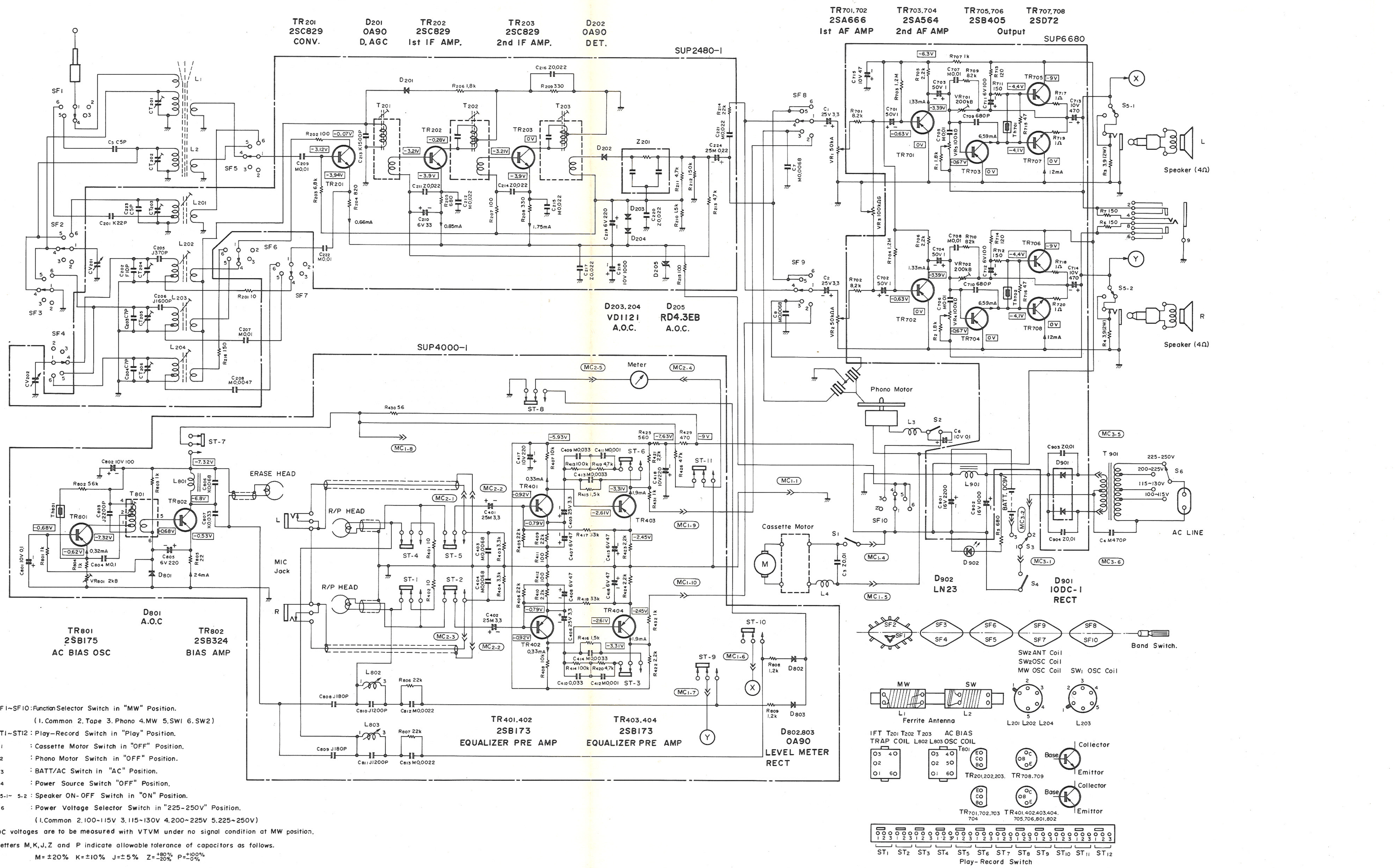
NOTES

1. SF1~SF6: Function Selector Switch in "FM" Position.
   (1. Common 2. Tape 3. Phono 4. FM 5. AM)
2. ST1~ST12: Play-Record Switch in "Play" Position.
3. S_1 : Cassette Motor Switch in "OFF" Position.
4. S_2 : Phono Motor Switch in "OFF" Position.
5. S_3 : BATT/AC Switch in "AC" Position.
6. S_4 Power Source Switch ih "OFF" Position.
7. S_{5-1}~S_{5-2}: Speaker ON-OFF Switch in "ON" Position.
8. S_6 : Power Voltage Selector Switch in "225-250V" Position
   (1. Common 2. 100~115V 3. 115V~130V 4. 200~225V 5. 225~250V)
9. DC Voltages are to be measured with VTVM under no signal condition at AM Position.
10. Letters M, K, J, Z and P indicate allowable tolerance of capacitors as follows.
    M= ±20% K= ±10% J= ±5% $Z = {}^{+80\%}_{-20\%}$ $P = {}^{+100\%}_{-\ 0\%}$

R	101 201 102 202 103 203 218 206 208 104 209 211 210 214 213 212 215 216 217 220 219 701 703 705 707 709 713 711 715 717 719 3 7 6 801 802 804 803 805 204 205 430 207 401 806 403 405 409 411 407 413 417 415 419 423 421 431 425426429 808 702 704 706 1 710 714 712 716 718 720 4 402 807 404 406 410 412 408 414 418 416 420 424 432 422 809 2 5
C	101 102 103 202 104 105 106 107 108 109 110 111 212 214 216 215 217 218 219 224 225 221 220 222 223 715 701 703 705 707 709 711 713 203 201 204 205 206 207 208 209 211 210 405 407 409 413 411 415 230 418 7 1 3 702 704 706 708 710 712 903 714 801 804 803 802 805 806 807 809 808 810 811 812 813 404 403 401 402 417 408 406 410 414 412 416 8 2 6 901 902 904 4

SCHEMATIC DIAGRAM
Model No. SG-160F

SCHEMATIC DIAGRAM OF MODEL SG-160A


TR201 2SC829 CONV.
D201 OA90 D.AGC
TR202 2SC829 1st IF AMP.
TR203 2SC829 2nd IF AMP.
D202 OA90 DET.
SUP2480-1
TR701,702 2SA666 1st AF AMP
TR703,704 2SA564 2nd AF AMP
TR705,706 2SB405 Output
TR707,708 2SD72
SUP6680
D203,204 VD1121 A.O.C.
D205 RD4.3EB A.O.C.
SUP4000-1
Speaker (4Ω)
L
R
Phono Motor
Meter
ERASE HEAD
R/P HEAD
MIC Jack
Cassette Motor
T901
225~250V
200~225V
115~130V
100~115V
AC LINE
D902 LN23
D901 10DC-1 RECT
D801 A.O.C
TR801 2SB175 AC BIAS OSC
TR802 2SB324 BIAS AMP
TR401,402 2SB173 EQUALIZER PRE AMP
TR403,404 2SB173 EQUALIZER PRE AMP
D802,803 OA90 LEVEL METER RECT
Band Switch.
SW2 ANT Coil
SW2 OSC Coil
MW OSC Coil
SW1 OSC Coil
MW
SW
Ferrite Antenna
L201 L202 L204
L203
IFT T201 T202 T203 TRAP COIL L802 L803
AC BIAS OSC COIL T801
TR201,202,203. TR708,709
TR701,702,703,704
TR401,402,403,404,705,706,801,802
Base
Collector
Emittor
ST1 ST2 ST3 ST4 ST5 ST6 ST7 ST8 ST9 ST10 ST11 ST12
Play-Record Switch

NOTES

1. SF1~SF10: Function Selector Switch in "MW" Position.
   (1. Common 2. Tape 3. Phono 4. MW 5. SW1 6. SW2)
2. ST1~ST12: Play–Record Switch in "Play" Position.
3. S1: Cassette Motor Switch in "OFF" Position.
4. S2: Phono Motor Switch in "OFF" Position.
5. S3: BATT/AC Switch in "AC" Position.
6. S4: Power Source Switch "OFF" Position.
7. S5-1~5-2: Speaker ON-OFF Switch in "ON" Position.
8. S6: Power Voltage Selector Switch in "225-250V" Position.
   (1. Common 2. 100~115V 3. 115~130V 4. 200~225V 5. 225~250V)
9. DC voltages are to be measured with VTVM under no signal condition at MW position.
10. Letters M, K, J, Z and P indicate allowable tolerance of capacitors as follows.
    M=±20% K=±10% J=±5% $Z=^{+80\%}_{-20\%}$ $P=^{+100\%}_{-0\%}$

R		801	802 804			803		805		216		201			202 203		204		430 806 807	401 402	205 206		207 403 404	 405 406	208 209 210 211 212 215 213 214 411 409 407 413 417 415 419 423 431 421 425 429 412 410 408 414 418 416 420 424 432 422 426		 808 809		701 702		703 704	705 707 709 706 1, 2. 710	713 711 715 714 5 712 716	717 719 718 720	3.4 6.7
C	801			5 201 202 803 203 804 802 204	223		205 206 805		806 807		208		207	209		222 808 809		213 810 811	 812 813	211 210		212	 403 401 404 402	214	215 216 217 219 220 417 407 405 409 413 411 218 415 418 408 406 410 414 412 416	221 224		7 1 8 2 3		715	701 702	703 705 707 709 704 706 708 710 6 901	711 712 902	713 903 714 904	 4

SCHEMATIC DIAGRAM
Model No. SG-160A

WIRING DIAGRAM OF MODEL SG-160A/160F

TR802

C	−0.68V
B	−0.68V
E	−0.53V
Ic	24mA

TR801

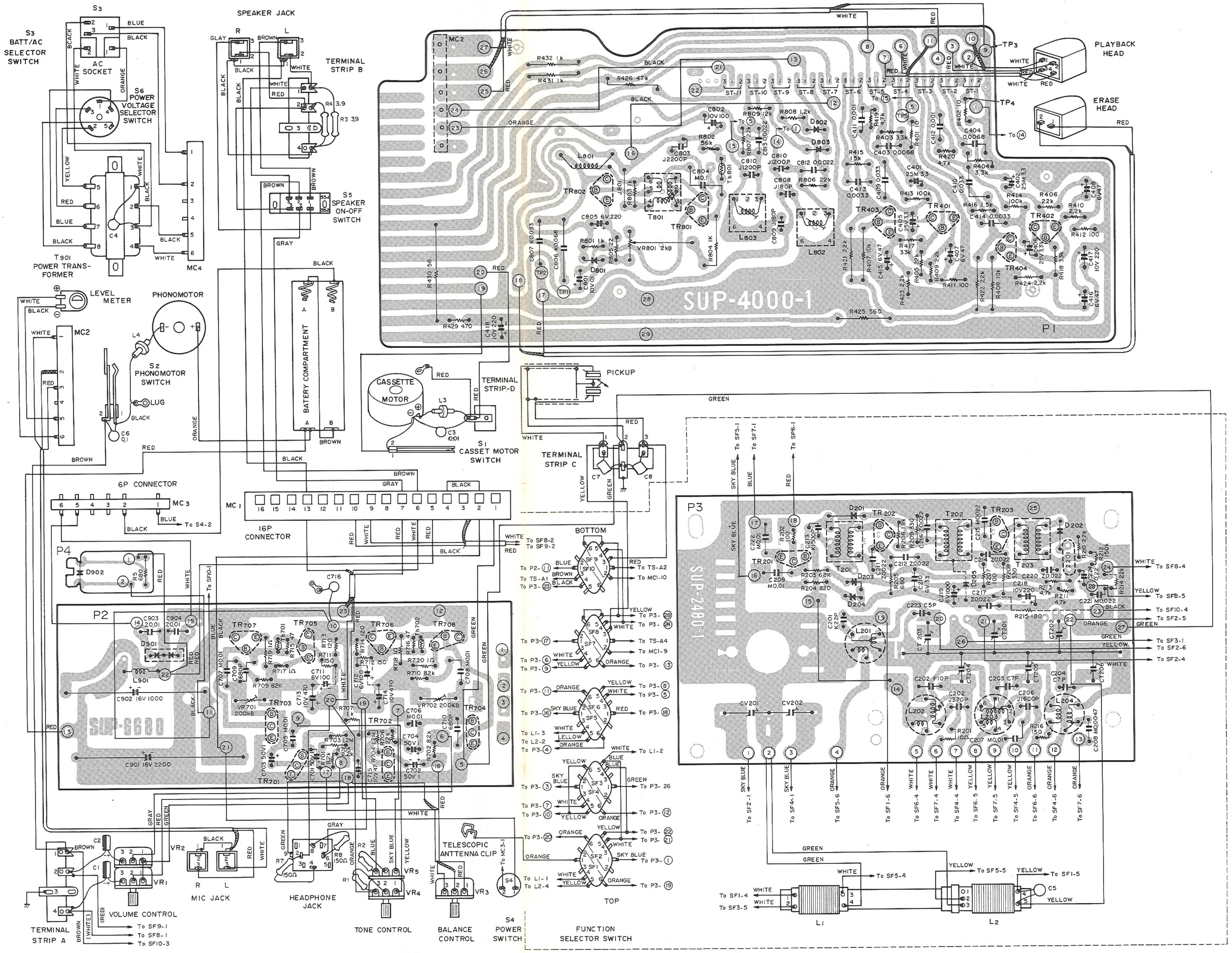
C	−7.32V
B	−0.68V
E	−0.62V
Ic	0.32mA

TR403, 404

C	−2.45V
B	−2.61V
E	−3.31V
Ic	1.9mA

TR401, 402

C	−2.61V
B	−0.92V
E	−0.79V
Ic	0.33mA



S3
S3 BATT/AC SELECTOR SWITCH
AC SOCKET
S6 POWER VOLTAGE SELECTOR SWITCH
T901 POWER TRANS-FORMER
MC4
SPEAKER JACK
R
L
TERMINAL STRIP B
S5 SPEAKER ON-OFF SWITCH
LEVEL METER
PHONOMOTOR
S2 PHONOMOTOR SWITCH
LUG
MC2
BATERY COMPARTMENT
CASSETTE MOTOR
S1 CASSET MOTOR SWITCH
TERMINAL STRIP-D
PICKUP
TERMINAL STRIP C
6P CONNECTOR
MC3
To S4-2
MC1
16P CONNECTOR
P4
D902
P2
SUP-6680
TR701
TR702
TR703
TR704
TR705
TR706
TR707
TR708
P1
SUP-4000-1
TR401
TR402
TR403
TR404
TR801
TR802
TP3
TP4
PLAYBACK HEAD
ERASE HEAD
P3
SUP-2480-1
TR201
TR202
TR203
BOTTOM
TOP
FUNCTION SELECTOR SWITCH
TERMINAL STRIP A
VOLUME CONTROL
VR1
VR2
MIC JACK
HEADPHONE JACK
TONE CONTROL
VR4
VR5
BALANCE CONTROL
VR3
TELESCOPIC ANTTENNA CLIP
S4 POWER SWITCH
L1
L2
C5

TR705, 706

C	−9.0V
B	−4.4V
E	−4.2V
Ic	12mA

TR707, 708

C	0
B	−4.1V
E	−4.2V
Ic	12mA

TR703, 704

C	−4.1V
B	−6.7V
E	0
Ic	6.59mA

TR701, 702

C	0
B	−0.63V
E	−3.39V
Ic	1.33mA

TR201

C	0
B	−4.85V
E	−5.55V
Ic	0.39mA

TR202

C	−0.18V
B	−4.90V
E	−5.45V
Ic	0.83mA

TR203

C	−0.39V
B	−4.90V
E	−5.60V
Ic	1.76mA

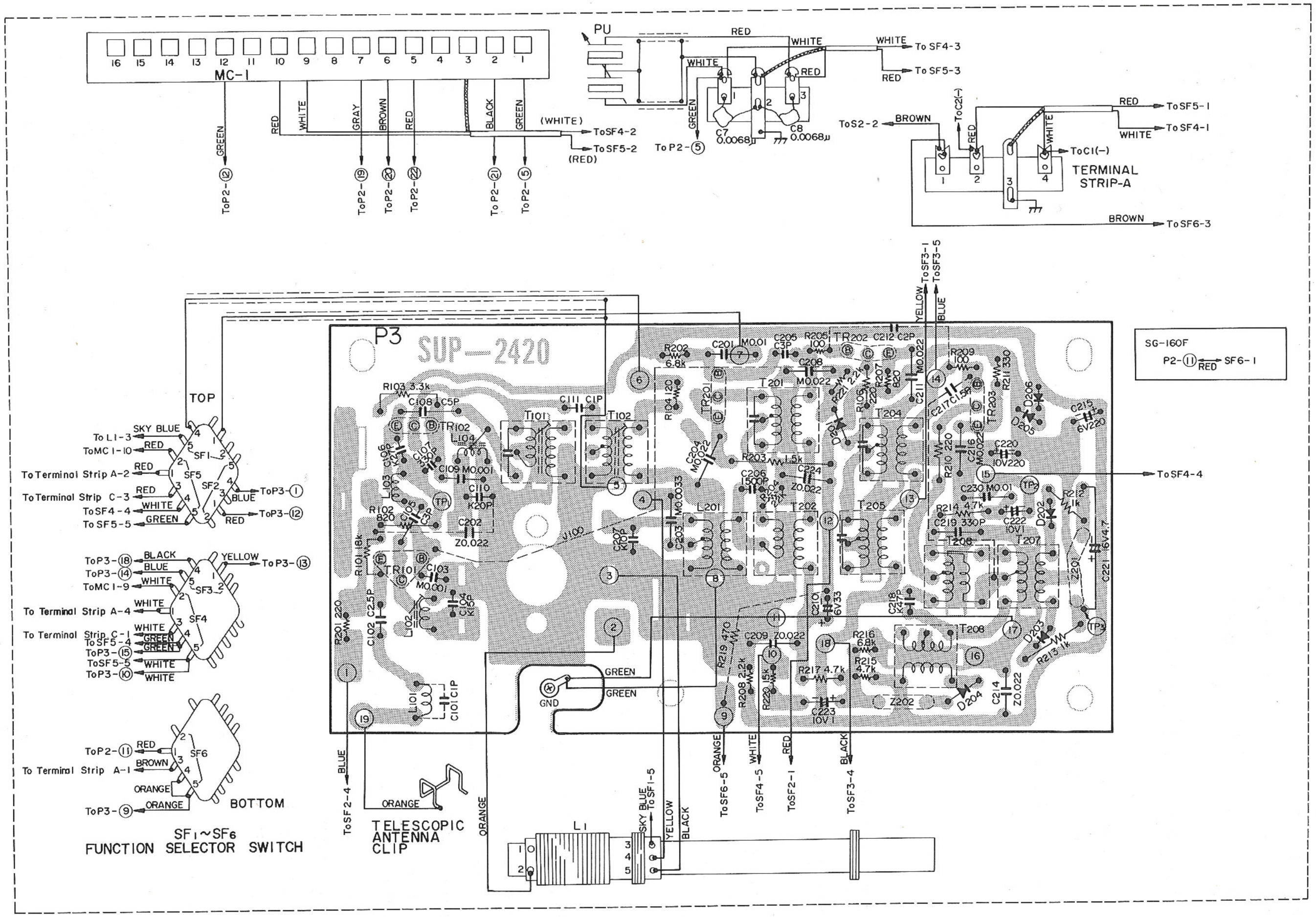
SG-160A only.

TR201

C	0
B	−4.85V
E	−5.55V
Ic	0.39mA

TR202

C	−0.18V
B	−4.90V
E	−5.45V
Ic	0.83mA


MC-1
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
GREEN
RED
WHITE
GRAY
BROWN
RED
BLACK
GREEN
(WHITE)
ToSF4-2
ToSF5-2
(RED)
ToP2-⑫
ToP2-⑲
ToP2-⑳
ToP2-㉒
ToP2-㉑
ToP2-⑤
PU
RED
WHITE
WHITE
RED
GREEN
C7 0.0068μ
C8 0.0068μ
To P2-⑤
WHITE
To SF4-3
RED
To SF5-3
ToS2-2
BROWN
ToC2(−)
RED
WHITE
RED
To SF5-1
WHITE
To SF4-1
ToC1(−)
TERMINAL STRIP-A
1 2 3 4
BROWN
To SF6-3
ToSF3-1
ToSF3-5
YELLOW
BLUE
P3
SUP-2420
SG-160F
P2-⑪ RED SF6-1
ToSF4-4
TOP
To L1-3
ToMC1-10
To Terminal Strip A-2
To Terminal Strip C-3
ToSF4-4
ToSF5-5
SKY BLUE
RED
RED
RED
WHITE
GREEN
BLUE
RED
ToP3-①
ToP3-⑫
SF1
SF2
SF3
SF4
SF5
SF6
ToP3-⑱
ToP3-⑭
ToMC1-9
To Terminal Strip A-4
To Terminal Strip C-1
ToSF5-4
ToP3-⑮
ToSF5-5
ToP3-⑩
BLACK
BLUE
WHITE
WHITE
WHITE
GREEN
GREEN
WHITE
WHITE
YELLOW
ToP3-⑬
ToP2-⑪
To Terminal Strip A-1
ToP3-⑨
RED
BROWN
ORANGE
ORANGE
BOTTOM
SF1~SF6
FUNCTION SELECTOR SWITCH
TR101
TR102
TR201
TR202
TR203
T101
T102
T201
T202
T204
T205
T206
T207
T208
L101
L102
L103
L104
L201
J100
Z201
Z202
D201
D202
D203
D204
D205
D206
TP1
TP2
TP3
R101 18k
R102 820
R103 3.3k
R104 120
R201 220
R202 6.8k
R203 1.5k
R205 100
R207 220
R208 2.2k
R209 100
R210 220
R211 330
R212 1k
R213 1k
R214 4.7k
R215 4.7k
R216 6.8k
R217 4.7k
R219 470
R220 15k
C101 C1P
C102 C2.5P
C103 M0.001
C104 K10P
C108 C5P
C109 M0.001
C110 K20P
C111 C1P
C201 M0.01
C202 Z0.022
C203 M0.0033
C204 M0.022
C206 C3P
C207 K10P
C208 M0.022
C209 Z0.022
C210 6V33
C211 M0.022
C212 C2P
C214 Z0.022
C215 6V220
C216 M0.022
C218 K10P
C219 330P
C220 10V220
C221 16V4.7
C222 10V1
C223 10V1
C224 Z0.022
C230 M0.01
GREEN
GREEN
GND
BLUE
ToSF2-4
ORANGE
TELESCOPIC ANTENNA CLIP
ORANGE
L1
1 2 3 4 5
SKY BLUE
ToSF1-5
YELLOW
BLACK
ORANGE
ToSF6-5
WHITE
ToSF4-5
RED
ToSF2-1
BLACK
ToSF3-4

TR203

C	−0.39V
B	−4.90V
E	−5.60V
Ic	1.76mA

TR102

C	0
B	−4.9V
E	−5.5V
Ic	0.54mA

TR101

C	0
B	−0.05V
E	−0.77V
Ic	0.28mA

SG-160F only.

MECHANICAL ADJUSTMENT OF TAPE DECK

PRESSURE ROLLER ADJUSTMENT

1. Switch set to PLAY. (Do not insert cassette.)
2. Hook Spring gage to arm of pressure rollers, as shown in Fig. 11.
3. Pull pressure roller away from the capstan in the direction of arrow 1 with spring gauge and slowly permit the pressure roller to return forward capstan in the direction of arrow 2.
4. Measure tension at time when pressure roller makes contact with capstan (or when pressure roller starts rotating.)
5. The standard tension of pressure roller should be 250 ~ 380 g.
6. If pressure is not within these limits;
   Clean the rubber roller and capstan with a soft cloth moistened with alcohol or replace pressure spring.

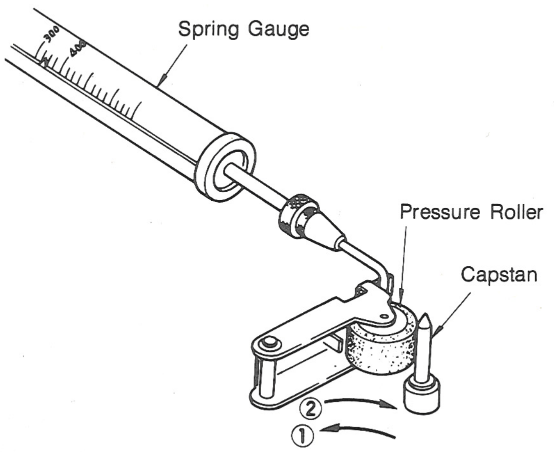


FIG. 11

TAKE-UP TORQUE ADJUSTMENT

* Test Tape: SRK-CT (Take-up Torque Meter)

1. Insert test tape.
2. Rewind the tape to its starting point.
3. Switch set to PLAY.
4. Read "►" mark of indicator on take-up side, as shown in Fig. 12.
5. Repeat PLAY-STOP several times and read the average tension.
6. The standard take-up tension should be 30 ~ 70 g.cm.
   If take-up tension is not within these limits;
   a) Clean main belt, take-up reel and all parts which contact them with a cotton swab moistened with alcohol, and/or
   b) Switch set to "OFF", remove main belt and make sure that take-up reel and take-up clutch are rotating smoothly.
   c) Change take-up clutch tension by turning the friction spring under reel table, as shown in Fig. 13, and/or
   d) Replace take-up clutch.

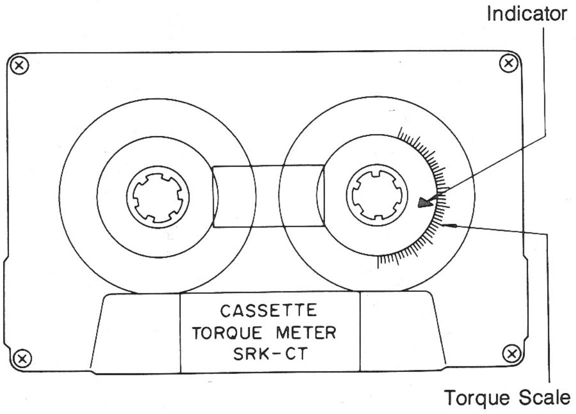


FIG. 12

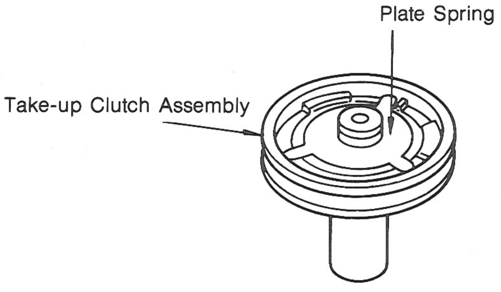


FIG. 13

EXPLODED VIEW OF CASSETTE TAPE DECK

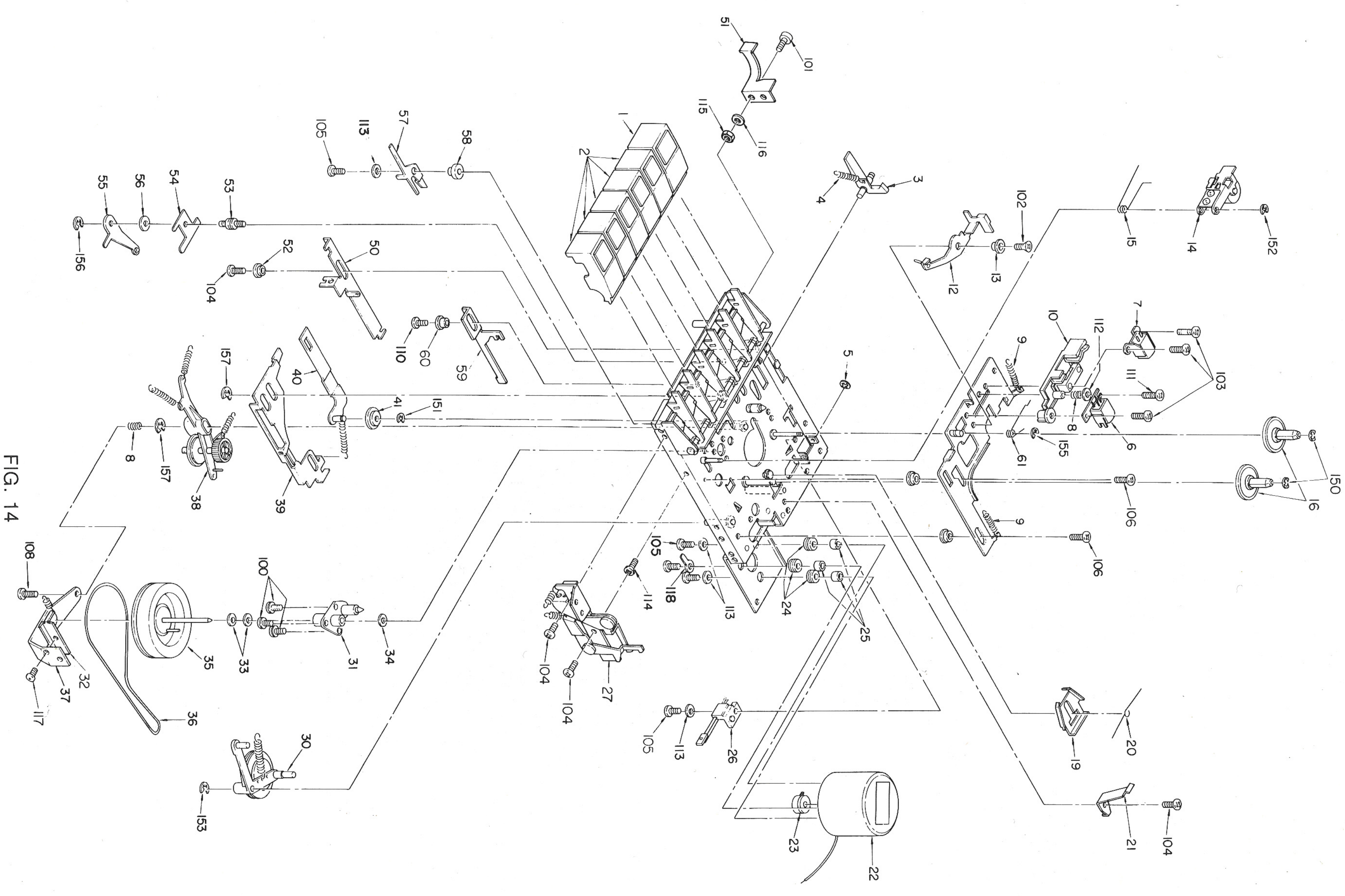

150
16
152
14
15
103
7
111
6
106
112
8
155
10
106
104
20
21
19
102
13
12
9
61
9
3
4
5
25
22
23
24
101
116
51
115
26
113
118
105
113
105
114
1
27
2
104
104
58
59
60
57
110
151
41
113
50
105
34
31
40
39
30
52
100
33
53
104
157
38
35
36
54
157
56
8
55
156
32
37
108
117
153

FIG. 14

EXPLODED VIEW OF PHONOMOTOR

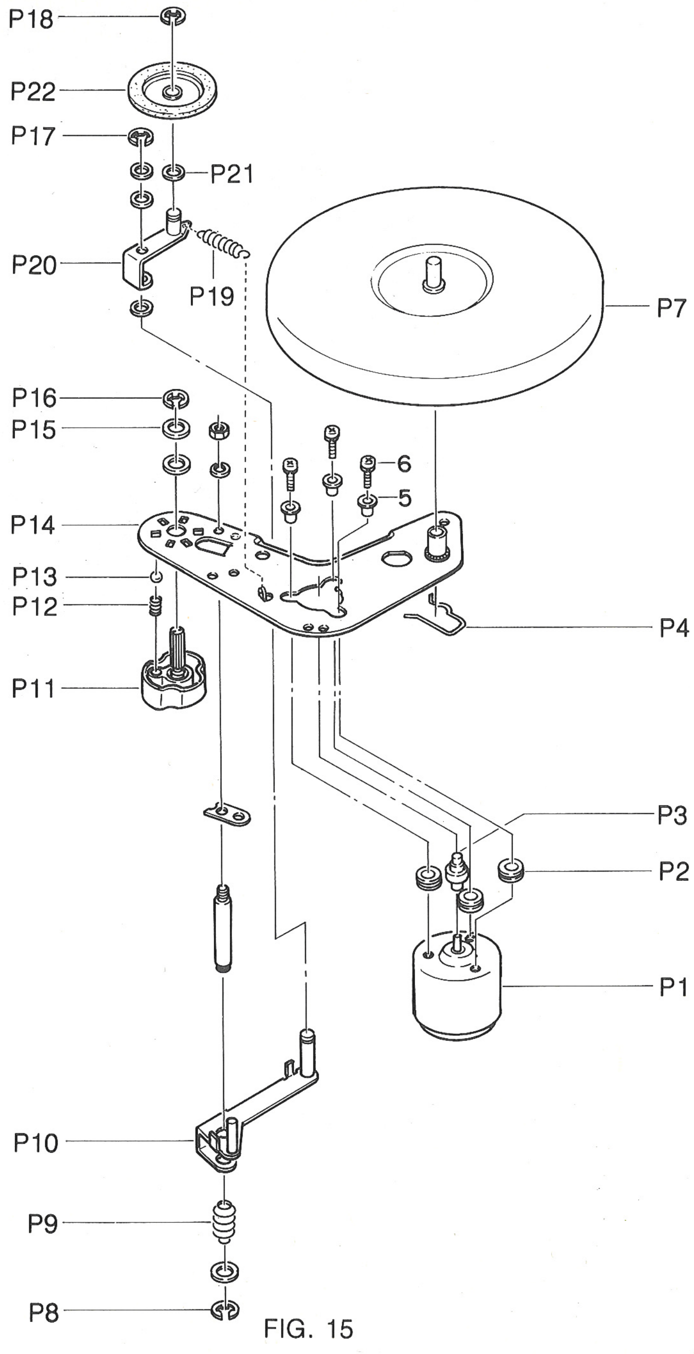

P18
P22
P17
P21
P20
P19
P7
P16
P15
6
5
P14
P13
P12
P4
P11
P3
P2
P1
P10
P9
P8

FIG. 15

REPLACEMENT PARTS LIST

NOTES: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.

2. SAFETY indicates that only parts specified by the manufacturer be used for replacement in critical circuits.

3. A ~ C rank.
A rank parts will cover 80% of repair needs.
A + B rank parts will cover 95% of repair needs.
C rank parts are less necessary.

Ref. No.		Part No.	Description	Per Set (pcs.)	Remarks			
TRANSISTORS (SG-160A)								
TR201,202,203		2SC829	Converter, 1st and 2nd IF Amp.	3	A			
TR701,702		2SA666	1st AF Amplifier	2	A			
TR703,704		2SA564	2nd AF Amplifier	2	A			
TR705,706		2SB405	Power Output (red and orange)	2	A			
TR707,708		2SD72	Power Output (red and orange)	2	A			
TR401~404		2SB173	Equalizer Pre-amplifier	4	A			
TR801		2SB175	AC Bias Oscillator	1	A			
TR802		2SB324	Bias Amplifier	1	A			
TRANSISTORS (SG-160F)								
TR101		2SC668	FM RF Amplifier	1	A			
TR102		2SC1675	FM Converter	1	A			
TR201		2SC829	FM 1st IF Amp. and AM Converter	1	A			
TR202		2S829	FM 2nd IF Amp. and AM 1st IF Amp.	1	A			
TR203		2SC829	FM 3rd IF Amp. and AM 2nd IF Amp.	1	A			
TR701,702		2SA666	1st AF Amplifier	2	A			
TR703,704		2SA564	2nd AF Amplifier	2	A			
TR705,706		2SB405	Power Output (red and orange)	2	A			
TR707,708		2SD72	Power Output (red and orange)	2	A			
TR401~404		2SB173	Equalizer Pre-Amplifier	4	A			
TR801		2SB175	AC Bias Oscillator	1	A			
TR802		2SB324	Bias Amplifier	1	A			
DIODES (SG-160A)								
D201,202,802,803		OA90	D.AGC, DET and Level Meter Rect.	4	A			
D203,204,801		VD1121	AOC	3	A			
D205		RD4.3EB	AOC	1	○A			
D901		10DC-1	Rectifier	1	A			
D902		LN23	Light Emitting	1	A			

REPLACEMENT PARTS LIST

DIODES (SG-160F)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
D201,802,803	OA90	D.AGC, and Level Meter Rect.	4	A
D202,203	2OA90	FM Detector	2	A
D205,206,801	VD1121	AOC	3	A
D901	10DC-1	Rectifier	1	A
D902	LN23	Light Emitting	1	A

THERMISTORS

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
TH701,702	ERTD3FFK350S	Temperature Compensator	2	A
TH801	RRT103	Temperature Compensator	1	A

METER

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
ME1	SSM4	Tuning Meter	1	A

COILS AND TRANSFORMERS (SG-160A)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
L1,2	SLF5G6	MW and SW1 Ferrite ANT. Coil	1	A
L3,4	ELQ250A999	Peaking Coil	2	B
L201	SLA3P2	SW2 Antenna Coil	1	A
L202	SLO2P2	MW Oscillator Coil	1	A
L203	SLO3P2	SW1 Oscillator Coil	1	A
L204	SLO3P4	SW2 Oscillator Coil	1	A
L801	SLT6E2-D	Choke Coil	1	B
L802,803	SLQZ542-2K	Bias Trap Coil	2	A
L901	SLT6G2-D	Choke Coil	1	B
T201	SLI2C14-M	1st IFT	1	A
T202	SLI2C24-M	2nd IFT	1	A
T203	SLI2C44-M	3rd IFT	1	A
T801	SLO9Z4-K	AC Bias Oscillator	1	A
T901	SLT5K6-DS	Power Transformer	1	A

COILS AND TRANSFORMERS (SG-160F)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
L1	SLF2E4	Ferrite Antenna Coil	1	A
L101,103	ELQ5A9	FM ANT. Coil and IF Trap Coil	2	A
L104	ELL5N341	FM OSC Coil	1	A
L102	ELD5N302	FM DET Coil	1	A
T101	SLI4C12-M	FM 1st IFT	1	A
T102,201	SLI4C32-M	FM 1st and 2nd IFT	1	A
T204	SLI4C22-M	FM 3rd IFT	1	A
T206	SLI4C56	FM Disc. IFT	1	A
T207	SLI4C58	FM Disc. IFT	1	A
L201	SLO2C6-M	AM OSC Coil	1	A
L3,4	ELQ250A999	Peaking Coil	2	B
L802,803	SLQZ542-2K	Bias Trap Coil	2	B
L901	SLT6G2-D	Choke Coil	1	B
L801	SLT6E2-D	Choke Coil	1	B
T202	SLI2C14-M	AM 1st IFT	1	A
T205	SLI2C22-M	AM 2nd IFT	1	A
T208	SLI2C42-M	AM DET IFT	1	A
T901	SLT5K6-DS	Power Transformer	1	A
T801	SLO9Z4-K	AC Bias Oscillator	1	A

COMPONENT COMBINATION (SG-160A)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
Z201	EXAF203Z471	AM DET 470Ω, 0.01mfd (two)	1	B

COMPONENT COMBINATION (SG-160F)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
Z202	EXAF203Z471	AM DET 470Ω, 0.01mfd (two)	1	B
Z201	EXA5DL04C	FM DET 4.7kΩ (two), 330pf (three)	1	B

RESISTORS
(RF and IF Circuit) (SG-160A)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R201	ERD14TJ100	10Ω 1/4W ±5% Carbon	1	C
R202,207	ERD14TJ101	100Ω 1/4W ±5% Carbon	2	C
R208,209	ERD14TJ331	330Ω 1/4W ±5% Carbon	2	C
R205	ERD14TJ681	680Ω 1/4W ±5% Carbon	1	C
R204	ERD14TJ821	820Ω 1/4W ±5% Carbon	1	C
R206	ERD14TJ182	1.8kΩ 1/4W ±5% Carbon	1	C
R210	ERD14TJ152	1.5kΩ 1/4W ±5% Carbon	1	C
R211,213	ERD14TJ472	4.7kΩ 1/4W ±5% Carbon	2	C
R203	ERD14TJ682	6.8kΩ 1/4W ±5% Carbon	1	C
R212	ERD14TJ154	150kΩ 1/4W ±5% Carbon	1	C
R216	ERD14TJ151	150Ω 1/4W ±5% Carbon	1	C
R214	ERD14TJ223	22kΩ 1/4W ±5% Carbon	1	C

RESISTORS
(RF and IF Circuit) (SG-160F)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R205,209	ERD14TJ101	100Ω 1/4W ±5% Carbon	2	C
R104	ERD14TJ121	120Ω 1/4W ±5% Carbon	1	C
R201,206,210	ERD14TJ221	220Ω 1/4W ±5% Carbon	3	C
R211	ERD14TJ331	330Ω 1/4W ±5% Carbon	1	C

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R102,207	ERD14TJ821	820Ω 1/4W ±5% Carbon	2	C
R212,213	ERD14TJ102	1kΩ 1/4W ±5% Carbon	2	C
R203	ERD14TJ152	1.5kΩ 1/4W ±5% Carbon	1	C
R208,218	ERD14TJ222	2.2kΩ 1/4W ±5% Carbon	2	C
R103	ERD14TJ332	3.3kΩ 1/4W ±5% Carbon	1	C
R214,215,217	ERD14TJ472	4.7kΩ 1/4W ±5% Carbon	3	C
R202	ERD14TJ682	6.8kΩ 1/4W ±5% Carbon	1	C
R101	ERD14TJ183	18kΩ 1/4W ±5% Carbon	1	C
R204	ERD14TJ223	22kΩ 1/4W ±5% Carbon	1	C
R216	ERD14TJ683	68kΩ 1/4W ±5% Carbon	1	C
R220	ERD14TJ153	15kΩ 1/4W ±5% Carbon	1	C
R219	ERD14TJ471	470Ω 1/4W ±5% Carbon	1	C

(AF Circuit)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R715,716	ERD14TJ470	47Ω 1/4W ±5% Carbon	2	C
R713,714	ERD14TJ121	120Ω 1/4W ±5% Carbon	2	C
R711,712	ERD14TJ151	150Ω 1/4W ±5% Carbon	2	C
R707	ERD14TJ102	1kΩ 1/4W ±5% Carbon	1	C
R705,706	ERD14TJ222	2.2kΩ 1/4W ±5% Carbon	2	C
R702,701	ERD14TJ822	8.2kΩ 1/4W ±5% Carbon	2	C
R709,710	ERD14TJ823	82kΩ 1/4W ±5% Carbon	2	C
R703,704	ERD14TJ125	1.2MΩ 1/4W ±5% Carbon	2	C
R717～720	ERX1ANJ1R0	1Ω 1/W ±10% Metal Film	4	C

(Cassette Circuit)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R401,402	ERD14TJ100	10Ω 1/4W ±5% Carbon	2	C
R805	ERD14TJ220	22Ω 1/4W ±5% Carbon	1	C
R429	ERD14TJ471	470Ω 1/4W ±5% Carbon	1	C
R801,803	ERD14TJ102	1kΩ 1/4W ±5% Carbon	2	C
R808,809	ERD14TJ122	1.2kΩ 1/4W ±5% Carbon	2	C
R415,416	ERD14TJ152	1.5kΩ 1/4W ±5% Carbon	2	C
R409,410,423,424	ERD14TJ222	2.2kΩ 1/4W ±5% Carbon	4	C
R403,404	ERD14TJ332	3.3kΩ 1/4W ±5% Carbon	2	C
R419,420	ERD14TJ472	4.7kΩ 1/4W ±5% Carbon	2	C
R405,406,806,807	ERD14TJ223	22kΩ 1/4W ±5% Carbon	4	C
R417,418	ERD14TJ333	33kΩ 1/4W ±5% Carbon	2	C
R802	ERD14TJ563	56kΩ 1/4W ±5% Carbon	1	C
R413,414	ERD14TJ104	100kΩ 1/4W ±5% Carbon	2	C
R411,412	ERD14TJ101	100Ω 1/4W ±5% Carbon	2	C
R430	ERD14TJ560	56Ω 1/4W ±5% Carbon	1	C
R421,422	ERD14TJ222	2.2kΩ 1/4W ±5% Carbon	2	C

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R407,408	ERD14TJ103	10kΩ 1/4W ±5% Carbon	2	C
R426	ERD14TJ473	47kΩ 1/4W ±5% Carbon	1	C
R425	ERD14TJ561	560Ω 1/4W ±5% Carbon	1	C
R431,432,804	ERD14TJ102	1kΩ 1/4W ±5% Carbon	3	C

(Others)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R3,4	ERX2ANJ3R9	3.9Ω 2W ±5% Wire	2	C
R1,2	ERD14TJ182	1.8kΩ 1/4W ±5% Carbon	2	C
R5	ERD14TJ681	680Ω 1/4W ±5% Carbon	1	C
R6,7	ERD14TJ151	150Ω 1/4W ±5% Carbon	2	C

CAPACITORS
(IF and RF Circuit) (SG-160A)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
C223	ECCD1H050C	5pf 50WV ±0.25pf Ceramic	1	C
C203,204	ECCD1H070C	7pf 50WV ±0.25pf Ceramic	2	C
C202	ECCD1H100F	10pf 50WV ±1pf Ceramic	1	C
C201	ECCD1H220K	22pf 50WV ±10% Ceramic	1	C
C208	ECKD1H472MB	0.0047mfd 50WV ±20% Ceramic	1	C
C207,209,222	ECKD1H103MD	0.01mfd 50WV ±20% Ceramic	3	C
C212,221,215	ECKD1H223MD	0.022mfd 50WV ±20% Ceramic	3	C
C211,214,216,217, 220	ECKD1H223ZFZ	0.022mfd 50WV +80,−20% Ceramic	5	C
C205	ECQS1371JZ	370pf 100WV ±5% Styrol	1	C
C206	ECQS1162JZ	1600pf 100WV ±5% Styrol	1	C
C213	ECQS1152KZ	1500pf 100WV ±5% Styrol	1	C
C210	ECEA6V33	33mfd 6WV Electrolytic	1	C
C219	ECEA6V220	220mfd 6WV Electrolytic	1	C
C218	ECEA10V1000	1000mfd 10WV Electrolytic	1	C
C224	ECEA25MR22	0.22mfd 25WV Electrolytic	1	C

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks	
(RF and IF Circuit) (SG-160F)					
C101,111	ECCD1H010C	1pf 50WV ±0.25pf Ceramic	2	C	
C217	ECCD1H1R5C	1.5pf 50WV ±0.25pf Ceramic	1	C	
C212	ECCD1H020C	2pf 50WV ±0.25pf Ceramic	1	C	
C102	ECCD1H2R5C	2.5pf 50WV ±0.25pf Ceramic	1	C	
C105,205	ECCD1H030C	3pf 50WV ±0.25pf Ceramic	2	C	
C108	ECCD1H050D	5pf 50WV ±0.5pf Ceramic	1	C	
C104	ECCD1H150K	15pf 50WV ±10% Ceramic	1	C	
C110	ECCD1H200K	20pf 50WV ±10% Ceramic	1	C	
C106	ECCD1H270K	27pf 50WV ±10% Ceramic	1	C	
C218	ECCD1H470K	47pf 50WV ±10% Ceramic	1	C	
C207	ECCD1H100K	10pf 50WV ±10% Ceramic	1	C	
C103,109	ECKD1H102MD	0.001mfd 50WV ±20% Ceramic	2	C	
C201,230	ECKD1H103MD	0.01mfd 50WV ±20% Ceramic	2	C	
C204,211,216,208	ECKD1H223MD	0.022mfd 50WV ±20% Ceramic	4	C	
C203	ECKD1H332MD	0.0033mfd 50WV ±20% Ceramic	1	C	
C202,209,214,224	ECKD1H223ZFZ	0.022mfd 50WV +80, −20% Ceramic	4	C	
C107,219	ECQS1331JZ	330pf 100WV ±5% Styrol	2	C	
C206	ECQS1152KZ	1500pf 100WV ±10% Styrol	1	C	
C222,223	ECAG10E1	1mfd 10WV Electrolytic	2	B	
C210	ECEA6V33	33mfd 6WV Electrolytic	1	B	
C215	ECEA6V220	220mfd 6WV Electrolytic	1	B	
C221	ECEB25V4R7	4.7mfd 25WV Electrolytic	1	B	
C225	ECEA10V220	220mfd 10WV Electrolytic	1	B	
(AF Circuit)					
C705～708	ECKD1H103MD	0.01mfd 50WV ±20% Ceramic	4	C	
C903,904	ECKD1H103ZFZ	0.01mfd 50WV +80, −20% Ceramic	2	C	
C709,710	ECQS1681KZ	680pf 100WV ±10% Styrol	2	C	
C701～704	ECEA50V1	1mfd 50WV Electrolytic	4	C	
C711,712	ECEA6V100	100mfd 6WV Electrolytic	2	C	
C715	ECEA10V47	47mfd 10WV Electrolytic	1	C	
C713,714	ECEA10V470	470mfd 10WV Electrolytic	2	C	
C902	ECEB16V1000	1000mfd 16WV Electrolytic	1	C	
C901	ECEB16V2200	2200mfd 16WV Electrolytic	1	C	
C716	ECKD1H223ZFZ	0.022mfd 50WV +80, −20% Ceramic	1	C	160A

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks	
(Cassette Circuit)					
C808,809	ECQS1181JZ	180pf 100WV ±5% Styrol	2	C	
C810,811	ECQS1122JZ	1200pf 100WV ±5% Styrol	2	C	
C411,412	ECQM05102MZ	0.001mfd 50WV ±20% Polyester	2	C	
C812,813	ECQM05222MZ	0.0022mfd 50WV ±20% Polyester	2	C	
C413,414	ECQM05332MZ	0.0033mfd 50WV ±20% Polyester	2	C	
C403,404	ECQM05682MZ	0.0068mfd 50WV ±20% Polyester	2	C	
C409,410	ECQM05333MZ	0.033mfd 50WV ±20% Polyester	2	C	
C804	ECQM05104MZ	0.1mfd 50WV ±20% Polyester	1	C	
C806	ECQM05683KZ	0.068mfd 50WV ±10% Polyester	1	C	
C807	ECQM05333KZ	0.033mfd 50WV ±10% Polyester	1	C	
C401,402	ECEA25M3R3	3.3mfd 25WV Electrolytic	2	C	
C405,406	ECEA25V3R3	3.3mfd 25WV Electrolytic	2	C	
C407,408,415,416	ECEA6V47	47mfd 6WV Electrolytic	4		
C805	ECEA6V220	220mfd 6WV Electrolytic	1	C	
C802	ECEA10V100	100mfd 10WV Electrolytic	1	C	
C417,418	ECEA10V220	220mfd 10WV Electrolytic	2	C	
C801	ECAG10ER1	0.1mfd 10WV Electrolytic	1		
C803	ECQS1222JZ	2200pf 100WV ±5% Styrol	1	C	
(Others)					
C5	ECCD1H050C	5pf 50WV ±0.25pf Ceramic	1	C	160A
C1,2	ECEA25V3R3	3.3mfd 25WV Electrolytic	2	B	
C3	ECKD1H103ZFZ	0.01mfd 50WV +80, −20% Ceramic	1	C	
C4	ECKDDS471MB	470pf 250WV ±20% Ceramic SAFETY	1	B	
C6	ECAG16ER1	0.1mfd 16WV Electrolytic	1	B	
C7,8	ECQM05682MZ	0.0068mfd 50WV ±20% Polyester	2	C	
VARIABLE RESISTORS					
VR1,2	EWFPVAK20A54	50kΩ, Volume Control	1	○ A	
VR3	EVHCSAK20G15	100kΩ, Balance Control	1	○ A	
VR4,5	EWKDTAK20D15	100kΩ, Tone Control	1	○ A	
VR701,702	EVLT0AA00B25	200kΩ, DC Balance Control	2	A	
VR801	EVLS3AA00B23	2kΩ, AC Bias Control	1	A	

REPLACEMENT PARTS LIST

VARIABLE CAPACITORS (SG-160A)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
CV201,202	PVC2RM	Tuning Capacitor	1	A
CT201～206	SCVCD61RN10A	Trimmer Capacitor	1	A

VARIABLE CAPACITOR (SG-160F)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
CV201,202	PVC2LY20T145	Tuning Capacitor	1	A

SWITCHES

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
SF1-10	ESRE5AK15C	Function Selector Switch (SG-160A)	1	○ A
SF1-6	ESRE394K15E	Function Selector Switch (SG-160F)	1	○ A
ST1-12	SSH20-2	Play-REC Switch	1	A
S1	–	Cassette Motor Switch SAFETY (Refer to Ref. No. 26 on page 16.)		
S2	SJE8	Phonomotor ON-OFF Switch	1	A
S3	–	Batt/AC Selector SAFETY (Refer to Ref. No. CH22 on page 15.)	1	
S4	EVQBODK20	Power Switch	1	○ A
S5-1～5-2	SSS28	Speaker ON-OFF Switch	1	A
S6	SSR6	Power Voltage Selector SAFETY	1	A

SPEAKERS

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
SP1,2	EAS10P84SC	10 cm Speaker, 4Ω	2	A

CHASSIS

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
CH1	RDD60-3	Drum, Dial	1	C
CH2	SDT2204K	Tuning Shaft	1	B
CH3	RDS4170A	Spring, Drum	1	B
CH4	RDY36	Pulley Shaft	2	C
CH5	RDY32-1	Pulley Shaft	1	C
CH6	RDR20	Pulley	3	C
CH7	RNW150-2	Washer, Pulley	3	C
CH8	SME68	Rest Lever	1	C
CH9	SJC506	Spring, Battery	2	C
CH10	SJC112	Terminal, Battery	2	C
CH11	RDZ05-4	Dial Cord	75 cm	C
CH12	SMY22	Heat Sink, Cassette	1	C
CH13	SMY40	Heat Sink, AF	2	C
CH14	SXE92	Dial Pointer Assembly	1	○ B
CH15	RJJ78	Microphone Jack	4	B
CH16	SNE420	Nut, MIC Jack	4	C
CH17	SJR201	Terminal Strip, 2P	1	C
CH18	SJR302	Terminal Strip, 3P	1	C
CH19	RJR101	Terminal Strip, 1P	1	C
CH21	SJJ14	14P Connector Jack	1	C
CH22	RJJ4A	Power Socket (S3) SAFETY	1	C
CH23	SWJ8-1	Speaker Cord	2	B
CH24	SJP26	6P Connector, Male	2	C
CH25	SJS62	6P Connector, Female	2	C
CH26	SJJ32-1	Headphone Jack	1	C
CH27	SJA22	Power Cord SAFETY	1	B
CH28	RJP74	Adaptor Plug SAFETY	1	C
CH29	RJP75	Adaptor Plug SAFETY	1	C
CH30	XWS8	Washer 8ϕ, Volume Control	1	C
CH31	XNS8S	Nut 8ϕ, Volume Control	1	C
CH32	XWS7	Washer 7ϕ, Balance Control	2	C
CH33	XNS7S	Nut 7ϕ, Balance Control	2	C
CH34	XEASDS122GB	Telescopic Antenna	1	B
CH35	SJE46	Clip, Telescopic Antenna	1	B
CH36	XTV3+8BR	Screw, Chassis Mounting	5	C

ACCESSORIES

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
A1	SJM112	Microphone	2	A
A2	WN133	Microphone Stand	2	A
A3	SPS1HCCNRAZ1	Demonstration Tape	1	C
A4	SQX5680	Operating Instructions	1	○ C

PACKING

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
PA1	SPN2436	Carton (SG-160A)	1	○ C
PA1	SPN2438	Carton (SG-160F)	1	○ C
PA2	SPN1294	Pad	2	C

CABINET

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
CA1	SYK1434	Bottom Cover Assembly (SG-160A)	1	○ B
	SYK1436	Bottom Cover Assembly (SG-160F)	1	○ B
CA2	SBE70-1	Lock	2	○ B
CA3	SUW606	Bracket A, Lock	1	C
CA4	SUW608	Bracket B, Lock	1	C
CA5	SYH2-2	Handle	1	○ B
CA6	SUW610	Bracket, Handle	1	C
CA7	SHR214-6	Foot	2	○ C
CA8	SUW614	Bracket, Foot	2	C
CA9	SUW604-1	Bracket A, Hinge	1	○ C

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
CA10	SUW612-1	Bracket B, Hinge	1	○ C
CA11	SUW1076	Bracket, Player Board	3	○ C
CA12	SBH3002	Hinge A	4	C
CA13	SUW630	Hinge Holder	2	C
CA15	SGN2480	Name Plate (SG-160A)	1	C
	SGN2481	Name Plate (SG-160F)	1	C
CA16	SYK1426	Player Board Assembly (SG-160A)	1	○ B
	SYK1428	Player Board Assembly (SG-160F)	1	○ B
CA17	SKE148-2	Pickup Rest	1	○ C
CA18	SYK1426	Battery Cover Assembly	1	B
CA19	SGW2460	Control Panel (SG-160A)	1	○ C
	SGW2461	Control Panel (SG-160F)	1	○ C
CA20	SGW3480	Cassette Panel	1	○ C
CA22	SJB9018-2	Battery Case	1	C
CA23	SUW114	Holder, Battery Case	2	C
CA24	SYK1430	Top Cover Assembly (R)	1	○ C
CA25	SYK1432	Top Cover Assembly (L)	1	○ C
CA26	SBE72	Lock Holder	2	C
CA27	SUW146S	Bracket, Lock Holder	2	C
CA28	SBH3004	Hinge B	4	C
CA29	SUW520	Bracket C, Hinge	4	C
CA30	SGB520	Badge	1	C
CA31	SGB516	N Badge	1	C
CA32	SYB158	Baffle Board Assembly (L)	1	B
CA33	SYB160	Baffle Board Assembly (R)	1	B
CA34	SBN642K	Knob	6	A
CA35	SBN658K	Knob, Speed Selector	1	A
CA36	SYE430	Cassette Cover Assembly	1	B
CA37	SXE96	Holder (R), Cassette Cover	1	C
CA38	SXE90	Holder (L), Cassette Cover	1	C
CA39	SUS66-1	Spring, Cassette Cover	1	C
CA40	XSC3H6FCS	Screw, Baffle Board Mounting	12	C
CA41	SNT446	Washer, Baffle Board Mounting	12	C

PLAYER

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
	FF709DN92	Phonomotor Assembly	1	○ A
P1	MYT-6AN	Phonomotor Only	1	A
P2	FF-GBS009	Rubber Cushion	1	○ B
P3	FF-MCP004	Capstan	1	○ C
P4	FF-TLW005	Stopper Pin	1	○ A
P5	FF-USP011	Pipe	3	○ B
P6	JMK-3080UF	Screw, Motor Mounting	3	○ B
P7	FF-TTA701Z	Turntable Assembly	1	○ B
P8	FF-RSN005	Snap Ring	1	○ C
P9	FF-BCP010	Compression Spring	1	○ C
P10	FF-SBA039	Arm Plate Sub Assembly	1	○ C
P11	FF-CAA046	Cam Assembly	1	○ C
P12	FF-BCL006	Click Spring	1	○ C
P13	SB-5-32	Ball	1	○ C
P14	FF-PTA082	Main Plate Pre-assembly	1	○ C
P15	FZ-WAF001	Nylon Washer	1	○ C
P16	ER-40S	Snap Ring	1	C
P17	CSTW-3	CS Washer	1	○ C
P18	ER-30S	Snap Ring	1	C
P19	FF-BTN017	Tension Spring	1	○ C
P20	FF-SPA025	Stay Plate Assembly	1	○ C
P21	FZ-WAP003	Nylon Washer	1	○ C
P22	FF-IPA004	Idler Pulley Assembly	1	B
P23	EPU14	Pickup with Cartridge	1	○ A
P24	EPC02STH	Cartridge with Stylus	1	A
P25	SPJ4	Stylus	1	A
P26	SJY40	Turntable Mat with Trim	1	A
P27	SGE44	45 RPM Adaptor	1	B

CASSETTE TAPE DECK (SJD64)

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
1	SBC184	Push Button, REC	1	B
2	SBC182	Push Button	5	B
3	SMQ1232	REC Safety Lever	1	C
4	SMQ662	Spring, REC Safety Lever	1	B
5	SNE432	Circlip, REC Safety Lever	1	B
6	SJH30	R/P Head	1	A
7	SJH14	Erase Head	1	A
8	SMQ678	Spring, R/P Head and Flywheel Bracket	2	B
9	SMQ1360	Spring A, Head Panel	2	B
10	SMQ1362	Head Bae	1	C
12	SMQ1390	Auto-Stop Lever Assembly	1	C
13	SMQ1392	Spacer, Auto-Stop Lever	1	C
14	SMQ1364	Pressure Roller Assembly	1	A
15	SMQ1366	Spring, Pressure Roller	1	B
16	SMQ1448	Reel Assembly	2	B
19	SMQ1354	Brake Arm	1	C
20	SMQ1358	Spring, Brake Arm	1	B
21	SMQ1532	Spring, Tape Holder	1	B
22	MHT5PS	Motor	1	A
23	SMQ1386	Motor Pulley w/Screw (XXA2A-3)	1	B
24	SMQ716	Rubber Cushion, Motor	3	C
25	SMQ718	Spacer, Motor	3	C
26	SMQ1378	Motor ON-OFF Switch S1	1	A
27	SMQ1534	Eject Lever Assembly w/Spring	1	○ B
30	SMQ1368	Clutch Assembly w/Spring	1	C
31	SMQ1370-1	Bearing	1	C
32	SMQ1526	Auto Stop Adjust Arm	1	C

REPLACEMENT PARTS LIST (Continued)

Ref. No.		Part No.	Description	Per Set (pcs.)	Remarks			
33		SMQ148	Washer, Oil Thrower	2	C			
34		SMQ1402	Nylon Washer	1	C			
35		SMQ686	Flywheel	1	A			
36		SMQ1372	Main Belt	1	A			
37		SMQ1404	Flywheel Bracket	1	C			
38		SMQ1382-1	FF Arm Assembly w/Spring	1	C			
39		SMQ1406	Brake Operating Plate	1	C			
40		SMQ1408	Rewind Arm w/Spring	1	C			
41		SMQ1386	Rewind Idler	1	C			
50		SMQ1422	REC Slide Lever	1	C			
51		SUS200	Spring Plate, REC Switch	1	B			
52		SMQ1426	Spacer, REC Slide Lever	1	C			
53		SMQ1428	Shaft, FF and Rewind Lever	1	B			
54		SMQ1430	Rewind Lever	1	C			
55		SMQ1432	FF Lever	1	C			
56		SMQ1434	Nylon Washer, 6.1ϕ	1	C			
57		SMQ1436-1	Kick Lever, Auto-Stop	1	C			
58		SMQ1438	Spacer, Kick Lever	1	C			
59		SMQ1530	Player Lever	1	C			
60		SMQ1524	Spacer, Play Lever	1	C			
61		SMQ1444	Spring B, Head Panel	1	B			
100		XYN2+C5	Screw 2 mm × 5	3	C			
101		XSN2+5	Screw 2 mm × 5, REC Spring Plate	1	C			
102		XSS2+5	Screw 2 mm × 5	1	C			
103		XSN2+10	Screw 2 mm × 10	3	C			
104		SYN26+5	Screw 2.6 mm × 5	4	C			
105		XSN26+6	Screw 2.6 mm × 6	5	C			
106		XSB26+4	Screw 2.6 mm × 4, Head Panel	2	C			
108		XSN26+10	Screw 2.6 mm × 10	1	C			
110		XYN26+C6	Screw 2.6 mm × 6, Play Lever	1	C			
111		XSN2D6	Screw 2 mm × 6	1	C			
112		XWE2A6	Washer 2ϕ	1	C			
113		XWE26D7	Washer 2.6ϕ, 0.5T	4	C			
114		XSS26+4	Screw 2.6 mm × 4	1	C			
115		XNG2B	Nut, 2 mm	1	C			
116		XWA2B	Spring Washer 2ϕ	1	C			
117		XRL2×4	Rivet	1	C			
118		WT3	Lug	1	C			
150		XUC12FT	Circlip 1.2ϕ	2	B			
151		XUC15FT	Circlip 1.5ϕ	1	B			
152		XUCS19	Circlip 1.9ϕ	1	B			
153		XUC2FT	Circlip 2ϕ	1	B			
155		XUC25FT	Circlip 2.5ϕ	1	B			
156		XUC32FT	Circlip 3.2ϕ	1	B			
157		XUC4FT	Circlip 4ϕ	2	B			

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